

DuPont  
Material Safety Data Sheet

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AHG Solution Tohydroxamyl Chloride  
L08900761 Revised 21-MAY-2011 Printed 11-JUN-2012  
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Business and Sites

05 : 7351

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CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
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Material Identification

DuPont Registry Number : DP209-33-0  
PNDR Indicator : N  
Corporate Roll-up Ind. : N  
SROB Proposal Ind. : N

Product Type : I  
Status Indicator : F

Tradenames and Synonyms

Liquid In 7022 Reactor (FAA 7022-1)  
Liquid In 7022 Cooler  
Liquid In ORP Cells  
Acetohydroxyamylchloride

Company Identification

MANUFACTURER/DISTRIBUTOR  
DuPont  
12501 Strang Road  
P.O. Box 347  
La Porte, TX 77572-0347

PHONE NUMBERS

Product Information : 1-800-441-7515  
Transport Emergency : CHEMTREC: 1-800-424-9300  
Medical Emergency : 1-800-441-3637

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COMPOSITION/INFORMATION ON INGREDIENTS  
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Components

Material	CAS Number	%
Acetohydroxamyl Chloride	683-58-9	16
Hydrochloric Acid	7647-01-0	8
*Acetaldehyde	75-07-0	<1
Water	7732-18-5	76

\* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1980 and 40 CFR part 372.

## HAZARDS IDENTIFICATION

## Potential Health Effects

Skin contact may cause skin burns or ulceration. Acetaldehyde has been infrequently associated with skin sensitization in humans.

Eye contact may cause eye corrosion with corneal or conjunctival ulceration.

Inhalation may cause irritation of the upper respiratory passages, with coughing and discomfort; nonspecific discomfort, such as nausea, headache, or weakness. Higher exposures may lead to corrosion of mucosal surfaces with temporary lung irritation effects with cough, discomfort, difficulty breathing, or shortness of breath; may cause pulmonary edema (body fluid in the lungs) with cough, wheezing, abnormal lung sounds, possibly progressing to severe shortness of breath and bluish discoloration of the skin. Symptoms may be delayed. Prompt medical attention is required; dental erosions; and fatality from gross overexposure.

Ingestion may cause severe burns of the mouth, throat, esophagus and stomach with burning pain of the mouth, throat, chest and abdomen. Vomiting and diarrhea of dark blood may occur and penetration of the esophagus or stomach.

A study of chemical workers showed no association between hydrogen chloride exposure and lung cancer.

Exposure to large amounts of acetaldehyde may cause the "acetaldehyde syndrome". At first, blood pressure rises; the face, then the rest of the body becomes hot and flushed; a throbbing headache may develop. Sweating, thirst, dizziness and vomiting can occur. Then, blood pressure falls, resulting in weakness, dizziness, or fainting.

Certain oral anti-diabetic drugs and antibiotics (cephalosporins) reduce the body's ability to eliminate acetaldehyde. Individuals taking these drugs or who have preexisting diseases of the lungs or liver may have increased susceptibility to the toxicity of excessive exposures.

## Carcinogenicity Information

The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens.

Material	IARC	NTP	OSHA	ACGIH
Acetaldehyde	2B	X		A3

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FIRST AID MEASURES  
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## First Aid

## INHALATION

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

## SKIN CONTACT

In case of contact, immediately flush skin with plenty of water for at least 15 minutes, while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.

## EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

## INGESTION

If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

## Notes to Physicians

Activated charcoal mixture may be administered. To prepare activated charcoal mixture, suspend 50 grams activated charcoal in 400 mL water and mix thoroughly. Administer 5 mL/kg, or 350 mL for an average adult.

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FIRE FIGHTING MEASURES  
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## Flammable Properties

Will detonate if suitably primed, with severe impact, or by heat or flame.

## Extinguishing Media

Water Fog.

## Fire Fighting Instructions

Evacuate personnel to a safe area. Wear self-contained breathing apparatus. Wear full protective equipment. Flood with water.

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ACCIDENTAL RELEASE MEASURES

## Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus.

## Initial Containment

Dike spill. Prevent material from entering sewers, waterways, or low areas.

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HANDLING AND STORAGE

## Handling (Personnel)

Do not breathe vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Wash clothing after use. Discard shoes if contaminated.

## Handling (Physical Aspects)

Keep away from heat, sparks and flames.

## Storage

Store in a cool place. Keep container tightly closed.

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EXPOSURE CONTROLS/PERSONAL PROTECTION

## Engineering Controls

Use only with adequate ventilation. Keep container tightly closed.

## Personal Protective Equipment

Eye/Face	: Coverall chemical splash goggles.
Respirator	: Air supplied respirator.
Additional	: Chemical suit. Protective footwear.
	Cuffs and sleeves of suit should be taped closed.
Protective Gloves	: Neoprene.

## # Exposure Guidelines

## Applicable Exposure Limits

Hydrochloric Acid	
PEL (OSHA)	: 5 ppm, 7 mg/m3, Ceiling
TLV (ACGIH)	: Ceiling 2 ppm, A4
AEL * (DuPont)	: 5 ppm, 15 minute TWA
Acetaldehyde	
PEL (OSHA)	: 200 ppm, 360 mg/m3, 8 Hr. TWA
TLV (ACGIH)	: Ceiling 25 ppm, 45 mg/m3, A3 Notice of Intended Changes (2011) Ceiling 25 ppm, A2
AEL * (DuPont)	: 25 ppm, 8 Hr. TWA 50 ppm, 15 minute TWA

\* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

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PHYSICAL AND CHEMICAL PROPERTIES

## Physical Data

Vapor Pressure	: 20 mm Hg @ 61 C (142 F)
Vapor Density	: 3.2 (Air=1)
Melting Point	: -15 to -22 C (5 to -8 F)
Odor	: Sharp and irritating
Form	: Liquid
Color	: Greenish blue to purple
Specific Gravity	: 1.076

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STABILITY AND REACTIVITY

## Chemical Stability

Unstable with heat. Unstable with shock.

Overchlorination of AAO results in the formation of dichloro-nitroso ethane, or DCNE. DCNE has limited solubility in AHC and precipitates as a separate heavy phase. Heavy phase DCNE extreats AHC and other organics forming a material called "blue oil". In calorimetry tests, "blue oil" decomposes violently. There are two exotherms, one is at or above 31 C (88 F), and a second at about 76 C (169 F).

## Incompatibility with Other Materials

Incompatible with basic solutions Chlorine in excess of 15% forms 1-chloro-1-nitrosoethane.

## Decomposition

Decomposes with heat.

## (STABILITY AND REACTIVITY - Continued)

Decomposition temperature: 31 C (88 F)

Hazardous gases/vapors produced are  
1,1-dichloro-1-nitrosoethane, acetonitrile-oxide and  
acetoxyhydroxymethyl chloride.

## Polymerization

Polymerization will not occur.

## TOXICOLOGICAL INFORMATION

## Animal Data

## ACETOXYHYDROXAMIZE CHLORIDE

Inhalation 1 hour ALG: 40-60 ppm in rats  
Oral ALD: 90 mg/kg in rats

The compound is corrosive to the eye. Toxic effects described in animals from short exposures by inhalation, ingestion, or skin contact include respiratory and pulmonary effects, and nonspecific effects such as weight loss and irritation.

## HYDROCHLORIC ACID

Inhalation 1 hour LC50: 2810 ppm in rats  
Oral LD50: 900 mg/kg in rabbits

The compound is corrosive to skin and eyes, but is not a skin sensitizer in animals. The effects in animals from single inhalation exposures include respiratory irritation, corneal opacity, and corrosion of mucosal surfaces. Repeated and long-term exposures produced changes in the nasal cavity with necrosis, irregular breathing, thickening or changes in mucosal lining, and reduced weight gain. Long-term exposures also produced decreased liver weights. A single oral exposure produced gastric mucosal damage. Administration of repeated oral doses produced decreased body weight gain, mortalities and nonspecific changes. Long term dosing resulted in decreased relative and absolute spleen weights.

Tests in animals demonstrate no carcinogenic activity. Adequate tests in animals for developmental or reproductive effects have not been performed.

The compound does not produce genetic damage in bacterial cell cultures, does not generally produce genetic damage in mammalian cell cultures.

## ACETALDEHYDE

(TOXICOLOGICAL INFORMATION - Continued)

Inhalation 4 hour LC50: 13,300 ppm in rats  
Oral LD50: 1,930 mg/kg in rats

Acetaldehyde is a mild skin irritant and is a severe eye irritant.

In animals, effects from brief high inhalation exposures to Acetaldehyde include excitability, rapid breathing, increased blood pressure and heart rate, and anesthetic effects. Repeated exposures caused respiratory irritation, damage to the lining of the respiratory tract, altered lung function, changes in liver and kidney function, and altered hematology. Long term exposures caused decreased growth and inflammation, abnormal tissue growth, and cell death (necrosis) in the upper respiratory tract. In animals, effects of repeated oral doses include irritation of the gastrointestinal tract and altered liver function.

Acetaldehyde is carcinogenic in rats and hamsters, producing tumors of the nose and throat.

Acetaldehyde has been tested for its ability to cause developmental toxicity. Most tests have used large amounts given by injection. The results showed that the compound harms the unborn fetus, but the risk to humans from occupational exposure cannot be accurately predicted because of the large doses and route of exposure used.

There are reports indicating that Acetaldehyde produced genetic damage in some bacterial cell cultures, however the majority of reported tests are negative. This compound does produce genetic damage in mammalian cell cultures as well as in tests on animals.

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ECOLOGICAL INFORMATION

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Ecotoxicological Information

Aquatic Toxicity

96 hour LC50, mosquitto fish: 282 mg/L for Hydrochloric Acid  
96 hour LC50, fathead minnow: 79 mg/L for Acetic Acid

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DISPOSAL CONSIDERATIONS

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Waste Disposal

Do not flush to surface water or sanitary sewer system..

Recover nonusable free liquid and/or contaminated water, and dispose of in an approved and permitted biological treatment system or an approved and permitted deepwell.

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OTHER INFORMATION  
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## Additional Information

## References:

Haskell Toxicity Information Summary #596 for  
Acetohydroxamyl Chloride, #88 for Hydrochloric Acid and  
#1294 for Acetaldehyde.

Latest MSDS revision date: 99/07/18.

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The data in this Material Safety Data Sheet relates only to the  
specific material designated herein and does not relate to use in  
combination with any other material or in any process.

Responsibility for MSDS : Lannate Unit Technology Leader

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# Indicates updated section.

End of MSDS